



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Wietzoreck, et al.  
Serial No. : 09/980,910  
Filed : February 2, 2002  
For : METHOD FOR APPLYING A PHOSPHATE COVERING  
AND USE OF METAL PARTS THUS PHOSPHATED  
Art Unit : 1742  
Examiner : L. Zheng

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Commissioner for Patents  
P. O. Box 1450  
Alexandria, VA. 22313-1450

**DECLARATION UNDER 37 CFR 1.132**

Sir:

I, Hardy Wietzoreck, hereby declare and say that:

1. I am a citizen of Germany, residing at Werner-Bockelmann-Straße 86  
D-65934 Frankfurt am Main.
2. I am a named co-inventor in the above-captioned patent application.
3. I studied process engineering at the advanced technical college in Frankfurt.  
I am presently employed in the R&D laboratories of Chemetall GmbH at  
Frankfurt am Main, Germany, and have been employed by Chemetall for 19  
years. I am responsible for the development of coil applications and corrosion  
resistant aqueous compositions like those of the above-captioned patent  
application of Chemetall GmbH.
4. I am fully familiar with the application, and have reviewed the Office Action  
dated September 19, 2005, and US 6,743,302 to Cuyler et al. ("Cuyler"), cited by

the Examiner in support of §103(a) rejections of certain claims either alone or in combination with other references.

5. The present application concerns methods for applying a phosphate coating with phosphating solutions containing the cations and phosphate ions in a ratio of  $\Sigma \text{cations} : \text{P}_2\text{O}_5$  in the range from 1 : 1.200 to 1 : 1.700 .
6. Cuyler describes phosphating solutions in very broad ranges, but the examples are conducted within a small range showing extremely low ratios of cations to orthophosphoric acid. In the following, the data have to be calculated to another base to be comparable:

	<u>Claim 1 of Cuyler</u>	<u>Specification in cols. 5/6 of Cuyler</u>
Zn : $\text{H}_3\text{PO}_4$	0.005 : 1 – 0.035 : 1	0.003 : 1 – 0.100 : 1 col. 5, l. 21/30
Mn : $\text{H}_3\text{PO}_4$	0.050 : 1 – 0.150 : 1	0.010 : 1 – 0.700 : 1 col. 5, l. 42/52
Ni : $\text{H}_3\text{PO}_4$	0.020 : 1 – 0.100 : 1*	0.003 : 1 – 0.100 : 1 col. 5, l. 63/ col. 6, l. 5

\* Maximum value from the specification: Col. 6, first paragraph.

These data have to be calculated to  $\Sigma \text{cations} : \text{P}_2\text{O}_5$  to be comparable with the data of the present application.

$\Sigma \text{cations} : \text{H}_3\text{PO}_4$	<b>0.075 : 1 – 0.285 : 1</b>	<b>0.016 : 1 – 0.900 : 1</b>
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Calculation:  $\text{H}_3\text{PO}_4 \rightarrow \text{P}_2\text{O}_5$ :

$\Sigma \text{cations} : \text{P}_2\text{O}_5 :$	<b>0.054 : 1 – 0.206 : 1</b>	<b>0.012 : 1 – 0.652 : 1</b>
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The calculation of  $\Sigma \text{cations} : \text{P}_2\text{O}_5$  to  $\text{P}_2\text{O}_5 : \Sigma \text{cations}$  leads to:

<b>1 : 18.5 – 1 : 4.85</b>	<b>1 : 83.3 – 1 : 1.534</b>
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These ranges show that the ranges claimed by Cuyler are smaller than those calculated from ranges mentioned by very many ratios within the specification.

Please, note that there is an extremely broad range disclosed, but the invention described in detail is significantly smaller.

Further on, the range claimed in the present application is very small in comparison to the disclosure in Cuyler: **In the present claims, the ranges are 1 : 1.200 – 1 : 1.700.** Therefore they overlap partially with the very broad disclosure of Cuyler from 1 : 1.534 to 1 : 1.700.

Now the ratio of 1 : 1.700 which is inside the disclosure of Cuyler shall be calculated back to  $\Sigma$ cations :  $H_3PO_4$ :

$\Sigma$ cations : $P_2O_5$	0.588 : 1
$\Sigma$ cations : $H_3PO_4$	<b>0.812 : 1</b>

Such ranges having ratios of  $\Sigma$ cations :  $H_3PO_4 \geq 0.812 : 1$  do not seem to be preferred by Cuyler. To determine preferred embodiments, I reviewed the Examples of Cuyler, too. The data of table 4 for the concentrates and of table 5 for the respective bath compositions (working example compositions) were recalculated to disclose the following data and show relatively low cation contents in comparison to an extremely high content of orthophosphoric acid:

The data at the left of the following tables are for a density of 1.0 g/kg, and the data at the right for a density of 1.2 g/kg; estimations of the contents in g/L as the conversion from weight percent to g/L requires the density which is not exactly known. Therefore, according to my understanding, the correct data in g/L should be inside the range of data which have been calculated with the assumption of a density of 1.0 g/kg and such of a density of 1.2 g/kg which are one beneath the other separated by “/”:

g/L	4.1	4.2	4.3	4.4
P <sub>2</sub> O <sub>5</sub>	296/355	330/396	330/396	296/355
Zn	13/15	6/7	13/15	13/15
Mn	36/43	36/43	36/43	36/43
Ni	20/24	20/24	20/24	20/24
Σcations	69/82	62/74	69/82	69/82
Σcations : P <sub>2</sub> O <sub>5</sub>	0.233/0.231 : 1	0.188/0.187 : 1	0.209/0.207 : 1	0.233/0.231 : 1

g/L	5.1	5.2	5.3	5.4
P <sub>2</sub> O <sub>5</sub>	79/94	70/84	64/77	72/86
Zn	1/2	3/4	3/3	3/3
Mn	9/10	8/10	8/9	8/9
Ni	5/6	5/6	4/5	4/5
Σcations	15/18	16/20	15/17	15/17
Σcations : P <sub>2</sub> O <sub>5</sub>	0.190/0.191 : 1	0.229/0.238 : 1	0.234/0.221 : 1	0.208/0.198 : 1

g/L	5.5	C 5.1	C 5.2
P <sub>2</sub> O <sub>5</sub>	70/85	83/99	74/89
Zn	3/4	2/2	3/4
Mn	9/10	9/11	9/11
Ni	5/6	5/6	5/6
Σcations	17/20	16/19	17/21
Σcations : P <sub>2</sub> O <sub>5</sub>	0.243/0.235 : 1	0.193/0.192 : 1	0.230/0.236 : 1

According to my calculations, all the working examples of Cuyler show ratios of Σcations : P<sub>2</sub>O<sub>5</sub> in a range from **0.187 : 1** to **0.243 : 1** which corresponds to the range of **1 : 5.348** to **1 : 4.115** for the ratio P<sub>2</sub>O<sub>5</sub> : Σcations.

Therefore, also the data disclosed in the examples of Cuyler are far away from the ranges claimed in the present application (**1 : 1.200 – 1 : 1.700**). And the range of data Cuyler had worked in detail is comparatively narrow.

7. It is my opinion that, based on the data described in the examples of Cuyler, one of skill in the art would not be lead to the invention of the presently pending claims.

8. I further declare that all statements made herein of my own knowledge are true and that the statements made on information and belief are believed to be true; and, further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent resulting therefrom.

23. 1. 2006  
Date

Blavz Wintner  
Name